

4 a single glass transition temperature, does not have any phase separation and is  
5 optically clear consisting essentially of:

6 a first monomer represented by the formula:

7 
$$R(NCY)_x$$

8 wherein R is a hydrocarbon or substituted hydrocarbon radical, Y is oxygen or  
9 sulfur and x is two or more;

10 a second polyene monomer wherein the polyene contains only vinyl functional  
11 groups; and

12 a third polythiol monomer.

1 117. The composition of claim 116 wherein Y is oxygen.

1 118. The composition of claim 117 wherein the polyene is represented by the  
2 formula:

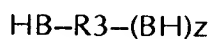
3 
$$[CH_2 = CR_1-CO-A-]_y R_2$$

4 wherein  $R_1$  is H or  $CH_3$ ; A is oxygen, sulfur, or NH;  $R_2$  is a polyvalent aliphatic,  
5 alicyclic or aromatic hydrocarbon residue, and y is 2-6.

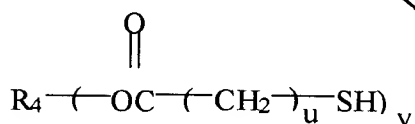
1 119. The composition of claim 118 wherein the polyisocyanate monomer is an  
2 aromatic diisocyanate.

- 1 120. The composition of claim 119 wherein the polyene monomer is a tri, or  
2 tetraacrylate compound.

- Sub 61 1 121. The composition of claim 120 wherein the polythiol monomer is selected  
2 from the group consisting of a compound represented by the formula:



- 3  
4 wherein  $R_3$  is an organic group consisting of polyvalent aliphatic or alicyclic and  
5 aromatic hydrocarbon,  $z$  is an integer of 1 to 3, and  $B$  is S; and



- 6  
7 wherein  $R_4$  is a substituted or unsubstituted aliphatic polyhydric alcohol residue,  
8  $u$  is an integer of 1 or 2, and  $v$  is an integer of 2 to 4.

- 1 122. The composition of claim 121 wherein the polyisocyanate is m-xylylene  
2 diisocyanate, the polyene is pentaerythritol tetraacrylate, and the polythiol is  
3 selected from the group consisting of pentaerythritol tetrakis(2-mercaptoacetate),  
4 1,2-ethanedithiol and mixtures thereof.

- Sub 62 1 123. The composition of claim 121 wherein the polyene is triallyl-1,3, 5-triazine-  
2 2,4,6(1H, 3H, 5H)-trione.

1 124. A process for making homogeneous terpolymer resins which terpolymers  
2 have a single glass transition temperature, do not have any phase separation and  
3 which are optically clear comprising reacting at an elevated temperature a curable  
4 composition consisting essentially of the composition of claim 116.

1 125. The process of claim 124 wherein the monomers are admixed under non-  
2 reactive conditions.

*and*  
1 126. The process of claim 124 wherein the monomers are admixed at a  
2 temperature of room temperature or below.

1 127. The process of claim 126 wherein an initiator and a reaction catalyst are  
2 added to the composition.

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1 128. The process of claim 127 wherein the initiator is 1,1'-  
2 azobis(cyclohexanecarbonitrile) and a reaction catalyst is dibutyltindilaurate or  
3 tributylamine.

*Sub 63*  
1 129. The process of claim 124 wherein the composition is cured by heating the  
2 composition to a first temperature of about 0° to 60°C, then heating the composition  
3 gradually to a second temperature of about 100 to 150°C over a period of about 1  
4 to 32 hours, maintaining the composition at the second temperature for about 4 to

Sub 63 5 32 hours, then cooling the composition to a third temperature of about 20 to 40°C  
6 over a period of about 1 to 32 hours.

1 130. The composition of claim 116 wherein photochromic materials are used to  
2 provide a tinted optical product.

1 131. The composition of claim 130 wherein the photochromic materials are  
2 naphthopyran compounds, spiro compounds or indoline compounds.

1 132. A terpolymer product made by polymerizing the composition of claim 116.

1 133. A polymer product made by polymerizing the composition of claim 121.

Sub 64 1 ~~134. A curable monomer composition for making a linear homogeneous~~  
2 ~~terpolymer which terpolymer has a single glass transition temperature, does not~~  
3 ~~have any phase separation and which is optically clear consisting essentially of the~~  
4 ~~composition of claim 116 and which solution polymerized or bulk polymerized at~~  
5 ~~an elevated temperature.~~

1 135. A linear terpolymer product made by polymerizing the composition of claim

2 134. --.